

# **The Abnormal Pap Smear**

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# Objectives

- Review the epidemiology of cervical cancer
- Review risk factors for cervical cancer
- Review current screening recommendations
- Discuss the reporting of pap smear results using the Bethesda System
- Determine the appropriate management of abnormal pap smear results

# Introduction

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- The Papanicolaou (Pap) smear has been in use since 1941
- It is the single most effective cancer screening test to date
- Sensitivity is 30-89%

# Epidemiology

- 3.5 million women have abnormal pap results in the US annually (about 7% of total paps performed)
- 4.4% of pap results are ASCUS
- In the US, 13,000 new cases of invasive cervical cancer per year
- 50% of women in the US with cervical cancer have never been screened
- 5-year survival rate for local disease is 92%
- 5-year survival for distant metastasis is 13%

# Risk Factors for Cervical Cancer

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- Early age at first intercourse (age <16)
- Multiple sexual partners
- Presence of STD, particularly HPV
- Immunosuppression
- **SMOKING!!!**
- In utero DES exposure

# The Human Papillomavirus (HPV)

- HPV is the leading etiologic agent in development of dysplasia
- HPV DNA is found in 95-100% of invasive cervical cancer (ICC) and 75-95% of high grade lesions (CIN II or III)
- Peak prevalence is 40% occurring between the ages of 20 and 29

## (HPV - continued)

- High risk types -  
16,18,31,33,35,39,45,51,52,56,58,59,6  
8,73,82
- Types 16 and 18 most prevalent in ICC
- Persistence of HPV infection is a key factor in progression to cancer

# Screening - When to Begin?

- ACOG, American Cancer Society (ASC), and US Preventive Services Task Force (USPSTF) all recommend screening starting at age 21, or 3 years after onset of sexual activity

# Screening - When to end?

- ACOG – No set upper age limit
- ACS – 70, if have had 3 consecutive normal tests, and no abnormalities in the last 10 years
- USPSTF – 65, if they are not at high risk and have had recent normal smears

# After hysterectomy

- May discontinue pap screening if done for non-malignant reasons a no CIN II/III in past
- If h/o CIN II/III and doesn't have 3 documented normals, must continue screening
- If h/o DES exposure, screening is indefinite
- If sub-total hysterectomy, follow above recommendations for age
- If hysterectomy done for CIN II/III, must do screening q 6 months x 3, then annual x 3

# How Often to Screen?

- **ACOG** – annually for all women under age 30 regardless of method (conventional vs. liquid)
  - Over age 30 can space to every 2-3 years  
IF
    - No history of CIN II or III
    - Not immunocompromised
    - Had no DES exposure
    - Have had 3 consecutive negative screens

# How Often (Cont)?

- **ASC** – Annual with conventional cytology, or every 2 years with liquid based cytology
  - **After age 30, may increase interval to every 2-3 years IF**
    - **Had 3 consecutive negative screens**
    - **Not high risk**
    - **Not immunocomprised**
- **USPSTF** – At least every 3 years in patients who have had 2 recent normal pap smears

# Bethesda 2001

- Specimen type (conventional, liquid-based, etc)
- Specimen Adequacy
  - Satisfactory (describes presence or absence of endocervical/ TZ component and other quality indicators such as obscuring blood or inflammation)
  - Unsatisfactory (reason specified)
- General Categorization
  - Negative for intraepithelial lesion or malignancy
  - Epithelial Cell Abnormality
  - Other (endometrial cells in a woman over 40)

# Bethesda 2001 - Negative for Intraepithelial lesion/malignancy

- Organisms—treat infection; some only if symptoms
  - *Trichomonas vaginalis*
  - Fungal organisms
  - Shift in flora suggestive of BV
  - Cellular changes c/w Herpes
  - *Actinomyces* spp.
- Other non-neoplastic findings (optional)
  - Reactive cellular changes
  - Glandular cells post hysterectomy
  - Atrophy

# Absent Endocervical Component

## or Blood/Inflammation

**obscuring** Expert task force has recommended that repeat cytology can be performed in 12 months. Should repeat in 6 months IF:

- $\geq$  ASCUS pap without 3 consecutive normals
- H/O atypical glandular cells of unknown origin
- + Hi-risk HPV in the last 12 months
- Inability to visualize or sample the endocervical canal
- Immunosuppression
- Non-compliant patient

# Bethesda 2001—Epithelial Cell Abnormalities, Squamous

- Atypical squamous cells
  - ASC-US (of undermined significance)
  - ASC-H (cannot exclude HSIL)
- Low grade squamous intraepithelial lesion (LSIL) - mild dysplasia/ CIN I
- High grade squamous intraepithelial lesion (HSIL) - moderate and severe dysplasia/ CIN II/III
- Squamous cell carcinoma

# Bethesda 2001—Epithelial cell abnormalities, Glandular

- Atypical Glandular
  - Endocervical (NOS)
  - Endometrial (NOS)
  - Glandular (NOS)
- Atypical
  - Endocervical, favor neoplastic
  - Glandular, favor neoplastic
- Endocervical adenocarcinoma *in situ*
- Adenocarcinoma – endocervical, endometrial, extrauterine, NOS

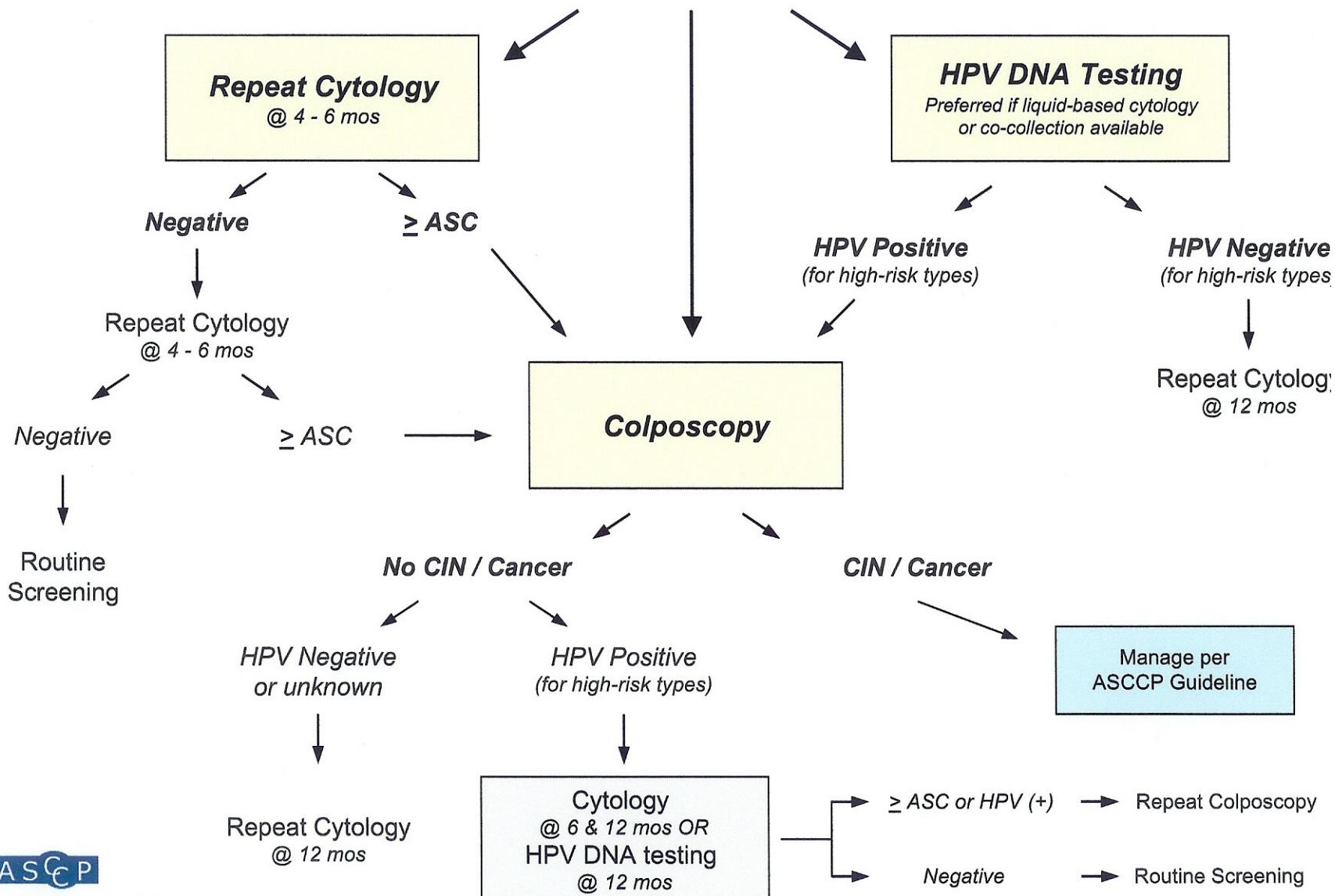
# Management

- Endometrial Cells noted on pap(>40 yoa)
  - 16% can have significant pathology
  - Do EMB if BTB or if risk-factors for endometrial hyperplasia:
    - postmenopausal
    - tamoxifen use
    - chronic anovulation
    - obesity
    - estrogen therapy
    - prior endometrial hyperplasia

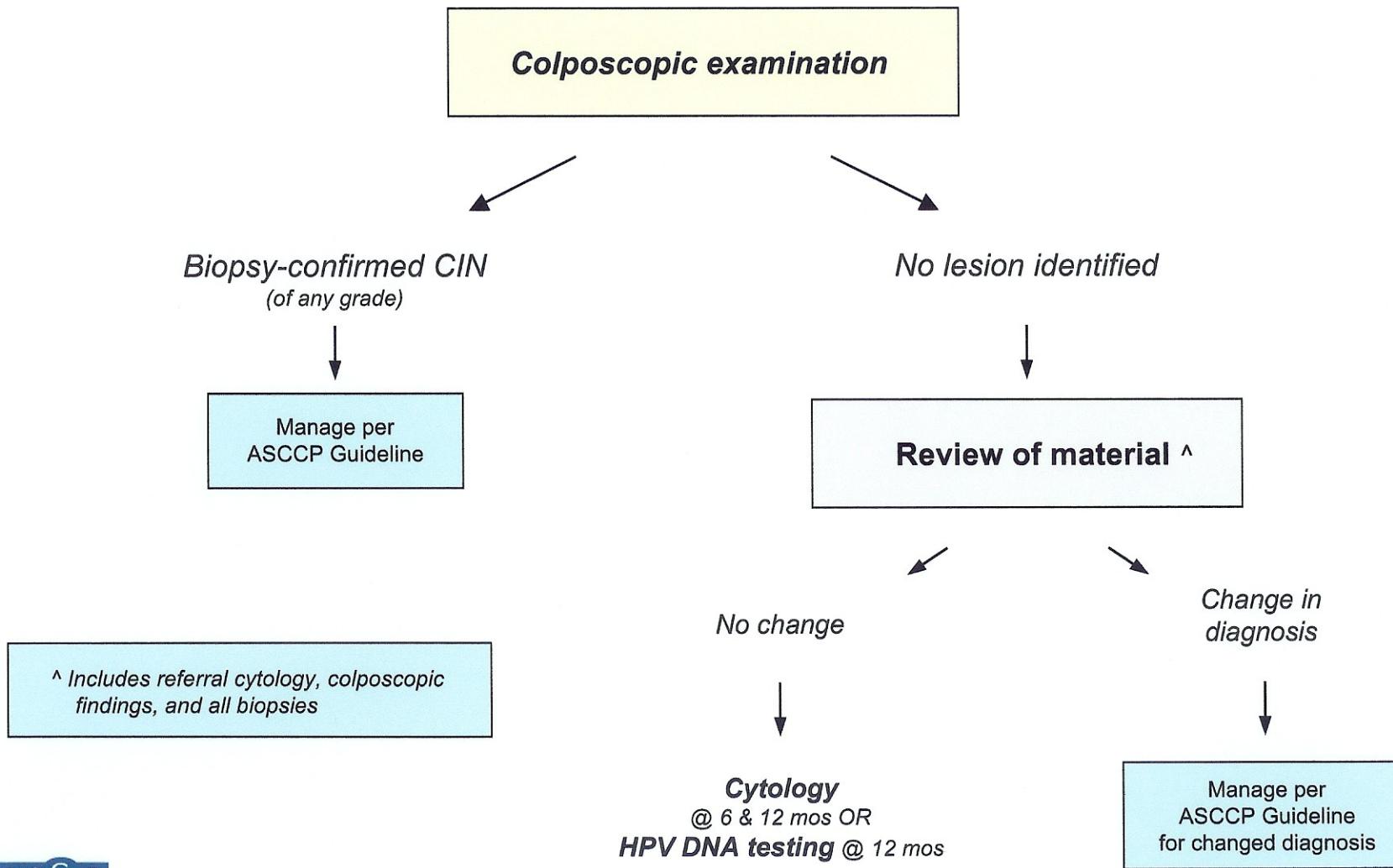
# Management-cont'

- Hyperkeratosis
  - No need for colposcopy
  - Repeat pap in 6 or 12 months based on risk-factors
- Pregnancy
  - ASCUS/+HPV, LGSIL and HGSIL should receive colpo WITHOUT ECC
  - Colpo biopsy recommended for suspected CIN II or greater (no need to biopsy suspected CIN I)

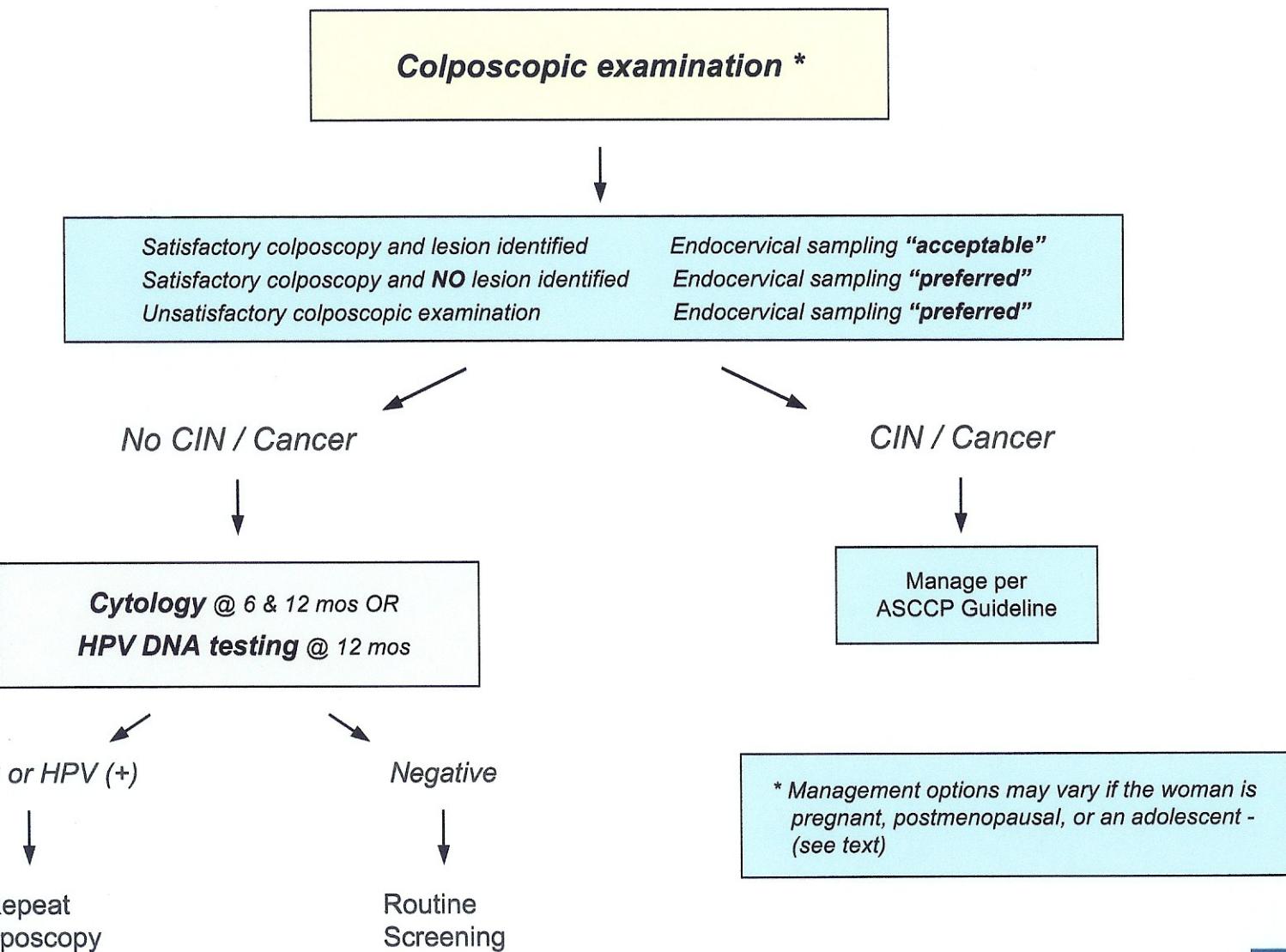
## Management of Women with Atypical Squamous Cells of Undetermined Significance (ASC-US)



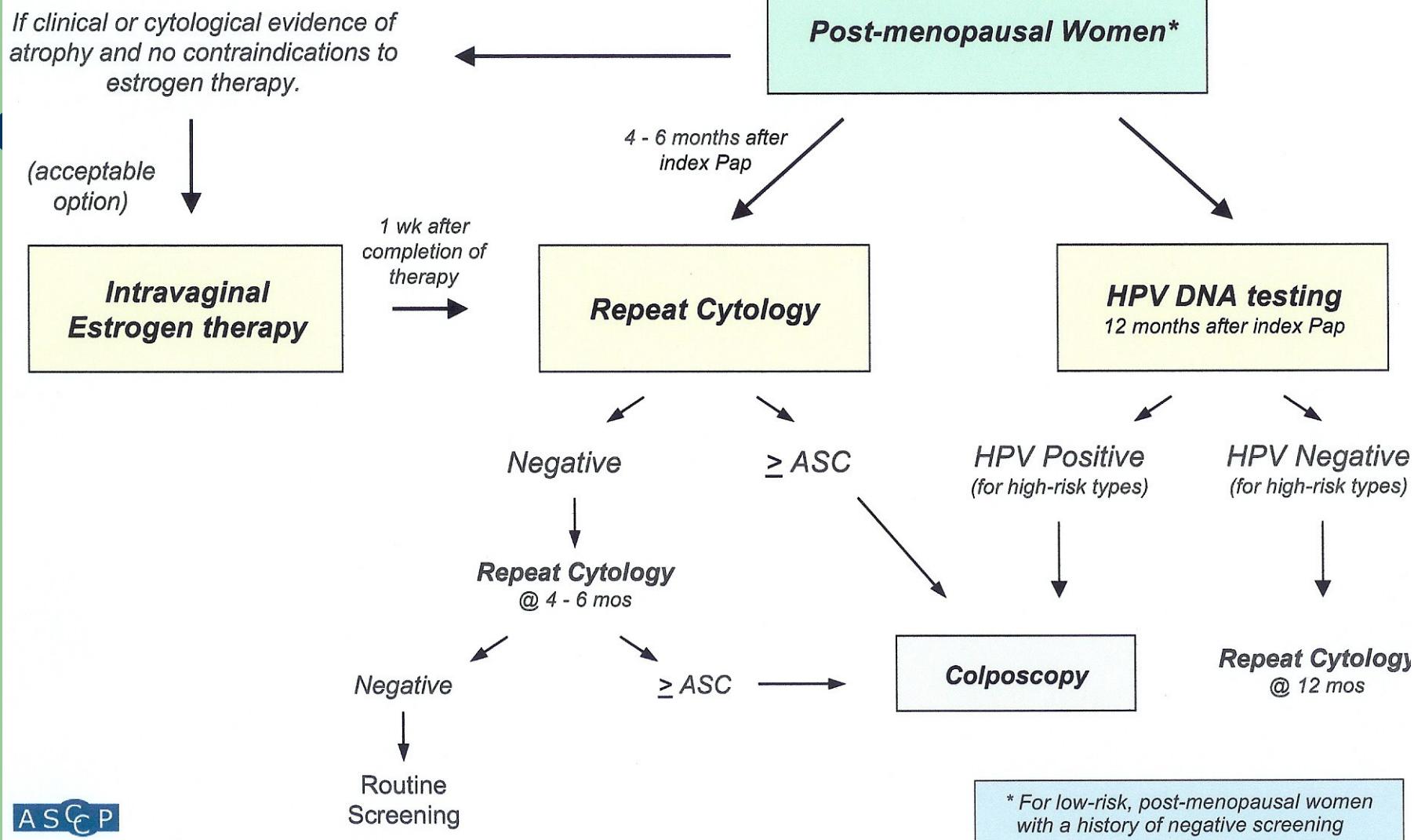
## Management of Women with Atypical Squamous Cells: Cannot Exclude High-grade SIL (ASC - H)



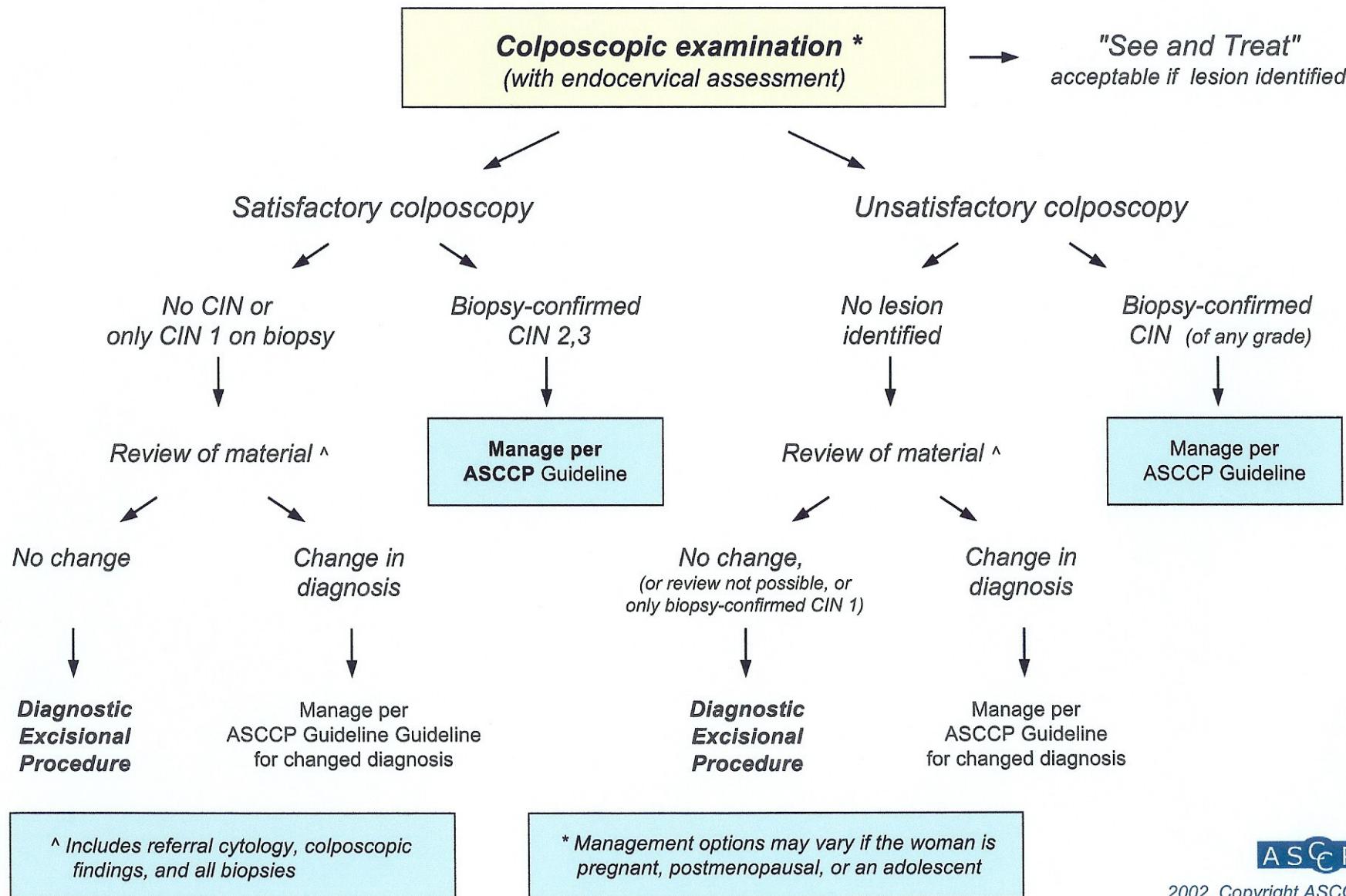
## Management of Women with Low-grade Squamous Intraepithelial Lesions (LSIL) \*



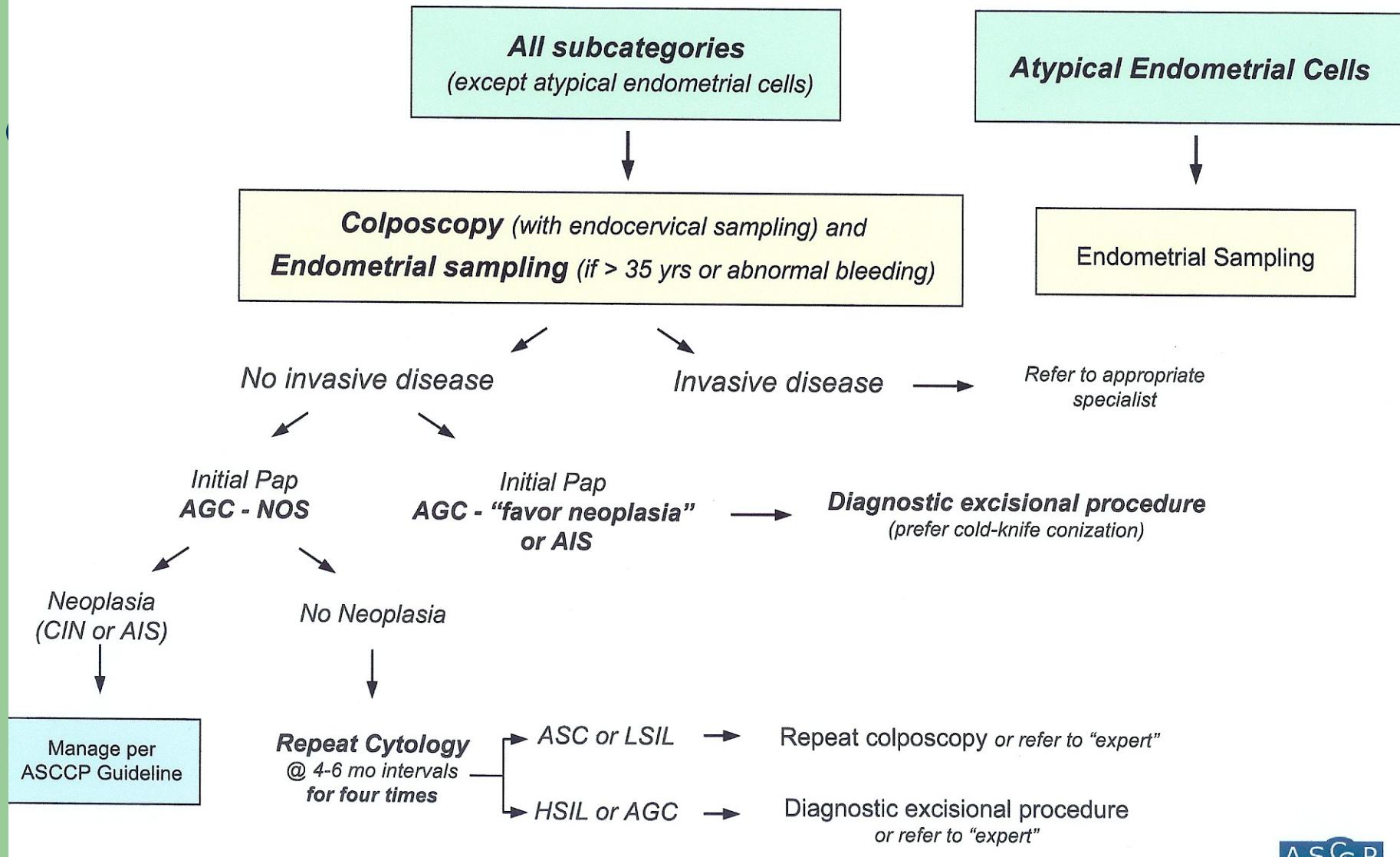
# Management of Women with Low-grade Squamous Intraepithelial Lesions In Special Circumstances



# Management of Women with High-grade Squamous Intraepithelial Lesions (HSIL) \*



## Management of Women with Atypical Glandular Cells (AGC)



# Summary

- Pap smear testing – single most effective cancer screening test to date
- Begin screening 3 years after onset of sexual activity or at 21 years of age
- HPV typing can be used to triage ASCUS paps
- Persistence of HPV is key factor in developing high grade dysplasia/ICC
- Remember ASCCP clinical guidelines for management of cytological abnormalities

# References

- Wright, Jr TC, Cox JT, Massad LS, Twiggs, LB, Wilkinson, EJ. 2001 Consensus Guidelines for the Management of Women with Cervical Cytological Abnormalities. *JAMA* 2002; 287: 2120-2129.
- Holowaty P, Miller AB, Rohan T, To T. Natural History of Dysplasia of the Uterine Cervix. *Obstetrical & Gynecological Survey* 1999; 54: 375-377.
- Sawaya GF, Brown AD, Washington AE, Garber AM. Current Approaches to Cervical-Cancer Screening. *The New England Journal of Medicine* 2001; 344: 1603-1607.
- Grimm KJ, Meadows SE, Ruplinger JM. Who should have colposcopy? *The Journal of Family Practice* 2003; 52: 64-66.
- U.S. Preventive Services Task Force. Screening for Cervical Cancer: Recommendations and Rationale. *American Family Physician* 2003; 8: 1759-1769.
- Altekruse SF, Lacey JV, Jr, Brinton LA, Gravitt, PE, Silverberg SG, Barnes WA, Jr, Greenberg MD, Hadjimichael OC, McGowan L, Mortel R, Schwartz PE, Hildesheim A. Comparison of human Papillomavirus genotypes, sexual and reproductive risk factors of cervical adenocarcinoma and squamous cell carcinoma. *American Journal of Obstetrics and Gynecology* 2003; 188: 657-663 (5)
- Murthy NS, Mathew A. Risk factors for pre-cancerous lesions of the cervix. *European Journal of Cancer Prevention* 2000; 9:
- Goodman A, Holschneider C. Management of the abnormal papanicolaou smear. Up to Date 2004.
- Solomon D et al. The 2001 Bethesda System. *JAMA* 2002: 287 (16)